EXECUTIVE SUMMARY

Coastlines are constantly changing due to both natural and anthropogenic forces. On-going climate change and associated sea-level rise are reshaping our coasts. However, the oceanfront is not the only concern. Shoreline dynamics along more sheltered estuaries, like those along the Albemarle-Pamlico Estuarine System (APES) of North Carolina, have gained attention. We need to better understand and manage these boundary resources that area a critical habitat for a variety of ecosystem goods and services. Research conducted on the Neuse River Estuary demonstrates the dominance of erosion along the shore of our estuaries, regardless of shore-type (e.g., marsh, beach, bluff). Erosion rates greater than 10 feet per year over a 40 year period were measured using aerial photography from 1958 and 1998. An average erosion rate of ~1 foot per year was calculated for the entire Neuse River Estuary. These erosion rates have led property owners to attempt to halt the loss of their water front by means of shoreline stabilization structures (i.e., riprap, sills, seawalls, etc.). About 30% of the shoreline along the Neuse River Estuary has been modified with stabilization structures with little understanding of the short-term ecological impacts or the long-term effects associated with on-going climate change and sea-level rise. It is imperative that we better understand the potential changes coastal North Carolina faces in the near future so that we can manage the natural resources appropriately.